

# **LACE: HOW OPEN ICT HELPS TO BUILD INTERNATIONAL MASTERS IN THE BOLOGNA PHILOSOPHY**

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## **Abstract**

LACE or Literature And Culture in Europe is a network working towards a joint and double international master's degree in the fields of literature and culture. Composed out of five progressive European universities, it wants to, in a first phase, improve the 'internationalization at home' by stimulating the venue of inbound international students in the master programmes at the arts departments of the involved institutions. Besides that, it wants to facilitate the exchange of teachers in all classes, in the form of block seminars.

In our paper we will present the current setup and architecture of the LACE support system and situate it into the university's Open Policies and our theoretical views on online open teaching, based on years-long experience in E-Learning pilots.

Keywords: Internationalisation, Bologna, Web2.0, Moodle.

## **1 THE LITERATURE AND CULTURE IN EUROPE NETWORK: GOALS AND AMBITIONS**

The faculty of arts of the K.U.Leuven has a long history in international collaboration. By joining the LACE group, five European Universities have connected themselves to uplift their collaboration to a higher level. The partners will join their strengths in the field of literature and culture.

The LACE partnership wants to improve the international experience of master students and staff of the participating institutions through Erasmus exchanges and the elaboration of an open curriculum. Addressing literature, film and theatre as cultural practices, LACE foregrounds the two notions of value and change in a Europe on the move. It foregrounds the dynamics of tradition and innovation driving these practices. The cooperation focuses in particular on the following issues: the interaction of literature and other arts (film, new media arts, theatre) with other regimes of representation, innovation in the field and the social responsibility and relevance conferred to literature and the other arts. This all is embedded in an approach of development of theoretical and methodological perspectives. It is an explicit objective of LACE to strengthen the theoretical reflection and methodology within literary, cultural and arts studies.

Defending a multilingual and cross-cultural approach that reflects the cooperation between institutions from diverse regions of Europe, LACE focuses on both continuities and discontinuities in European cultural history. In a globalized world undergoing an intense changing process, LACE strives to document and analyze the ways in which the arts - broadly conceived - contribute to western culture's self-reflection [1]. In practice the goal is to have in the participating classes a more representative mix of today's Europe, in an effort to broaden the students' perspectives on Culture.

### **1.1 Main principles of the collaboration**

From the beginning, the project, which is founded on a strong personal acquaintance and understanding amongst the participating members, was setup as fundamentally an ICT project. It is our strong belief that the use of ODL technologies and a policy on Open Education Resources are the decisive enabling factors to reach these goals. Three ingredients are deemed crucial for a successful realization of the project.

### **1.1.1 *Transparent information***

To stimulate students to take one semester at one of the other participating institutions, it is imperative that students are clearly informed about all the details of their semester abroad. A long tradition in dealing with both inbound and outgoing Erasmus students has strengthened our view that very explicit information on each administrative step and the many social issues involved are well documented.

This is why in the context of LACE, a portal website has been developed where students and professors alike can find all the relevant information about each institution. In a first phase it's been used to inform students about the project and partners, and to invite teachers and professors to give a block seminar in one of the partner institutions.

### **1.1.2 *Open Courses***

An integral part of the solution is to put the courses of the participating programmes online, so that students can follow what is going on from anywhere, and can get a quite precise idea of which course they would want to take abroad. We use Moodle since it allows in a very transparent way, not only to show the content, but also the whole workflow and activities involved in a course. Through these open Moodle courses, students have a virtual portfolio of the different courses that are available in the consortium, which in a second phase, we hope, will help to attract students from outside the consortium. Our first course online is 'Film and Literature', a collaboration between the university of Leuven and the university of Granada. To simplify the cooperation we not only offer the full course material online, we also film all colleges in Leuven to offer them to the students abroad through web colleges in Moodle.

### **1.1.3 *Interactive workspace***

Of course, student activities must also find their way online, so that students can truly interact not only with students abroad but also with their home base. Extensive use of Skype, videoconferencing and the Drupal CMS enables us to maintain multimode communications throughout the curriculum. How technology plays a crucial role in all this, is explained extensively in chapter three. It provides us with indispensable tools to create an interactive workspace, for students as well as for staff.

## **1.2 *Partners***

### **1.2.1 *K.U.Leuven, Belgium***

The Catholic University of Leuven, founded in 1425, caters to more than 34 000 students and around 12% of them are international students from more than 120 nations. The history of the Faculty of Arts runs parallel with that of Leuven university, with circa 3400 students in its 13 basic academic programmes and 15 advanced programmes [2]. In Leuven there are three master programmes involved in LACE: the master in Western Literature, the master in Literary Studies and the master in Cultural Studies.

Leuven took the initiative for the consortium in 2009, under the impulse of project leader Prof. Dr. Jan Baetens. Until now the central communication and administration point for LACE is done by a project collaborator of the Institute for Cultural Studies at the K.U.Leuven.

### **1.2.2 *Rijksuniversiteit Groningen, The Netherlands***

Founded in 1614, the University of Groningen is one of the oldest universities in the Netherlands with almost 27 000 students. The University of Groningen enjoys an international reputation as one of the leading research universities in Europe [3]. In the Faculty of Arts, with more than 5000 students, the master programme in Arts, Culture and Media is involved in LACE.

### **1.2.3 *Universidad de Granada, Spain***

The Universidad de Granada, founded in 1531, continues a long teaching tradition with seven University Campuses spread throughout the city, with over 70 000 students of which 13% are foreign students. The UGR is the leading European university in terms of receiving foreign students and the second Spanish university in terms of the mobility of its own students [4]. LACE signed an agreement with the department of Comparative Literature for cooperation.

### **1.2.4 *Universidade de Lisboa, Portugal***

The University of Lisbon has roots going back to 1911 and has in 2010 over 22 000 students. It's an internationalised University thanks to the close relations fostered with research groups and its

ability to attract foreign students [5]. The Humanities School of the University of Lisbon is with their Centre of Comparative Literature involved in LACE.

#### **1.2.5 Aarhus Universitet, Denmark**

Aarhus University has an international focus and makes targeted efforts to attract researchers and students from abroad. It's Denmark's second oldest and second largest university. The university was founded in 1928 and has an annual enrollment of more than 37 000 students [6]. The department of Aesthetic Studies and Comparative Literature joined the LACE network to reach their goal of internationalization.

Besides the five core partners of LACE, the consortium also holds close affiliation with the university Carlos III Madrid (Spain), the university of Bologna (Italy) and the university of Tartu (Estonia). They participate in the network for the exchanges of step one. The Semiotics department of the university of Tartu will probably become a new partner in the very close future, as negotiations are going on. The LACE network is still open for new strong partners who are willing to join.

### **1.3 Three step approach**

The partners of LACE are progressive universities, with a long-term planning. Our biggest ambition is to start an Erasmus Mundus to attract more foreign students. In this common cooperation and mobility programme our aim is to enhance the quality and diversity in our study field. To reach that goal, we started last year with a more intense collaboration, which we want to increase year by year. To make this all manageable we're working in three steps. As the partners get to know each other better and better, we're increasing our collaboration step by step. Our project is ambitious in building a common programme, in which teaching and research will be more intertwined. All steps are valuable and we don't have a final and limited goal. It's our ambition to keep our eyes open for new input and remain a moving consortium in a moving society.

#### **1.3.1 Erasmus exchanges**

In step one of the LACE project, which has already started, we want to foster students and teachers exchanges in a multilateral way between the partners. For the students, this will take the form of the traditional Erasmus exchanges; for the teachers, these exchanges mean that they are inviting colleagues from abroad to give short block seminars within existing courses or seminars. In the other way, they are encouraged themselves as well to insert such block seminars in their own courses or seminars.

The advantages of such a system are manifold. First, it's a simple but very efficient way to internationalize the course offerings with the expertise of foreign colleagues. Secondly, it helps all partners to learn in a practical way how the partner universities are working and collaborating with them is experienced. A third and very important advantage is that it helps as well to start building the common programme of step two and three. Finally, it is cost- and labor-neutral, since the costs involved can be paid with the Erasmus budget of each partner while the work involved is a matter of giving and receiving. The partner university that offers to send someone abroad for teaching a block seminar, can also ask to receive a colleague from abroad to teach something equivalent in the local institution. In order to organize all this we build a portal website in Drupal in which all relevant information is gathered. A crucial part of that website is the "dating site", in which the announcements of all partners are collected, regarding who would like to offer what and receive which kind of block seminar in return.

#### **1.3.2 A double and joint degree**

It's our ambition to go beyond what is going on in step one. In step two of the project, for the very close future, we would like to have a common programme, whose core business will follow the lines of our mission statement. This common programme will entail two aspects: on the one hand, there will be courses that already exist. Courses which are locally offered by each partner and that can be shared with others; on the other hand, we are building new, really common classes and seminars, which have been conceived in a joined manner (a summer school and other initiatives may for instance play a role in this regard, also online courses and distance teaching). The main idea is to fine-tune the mission statement first, and then to see how to invent/implement that common programme. Moreover, we

would like also to reward students who take part in this common programme (and in the exchanges in general) with a system of special certificates and double degrees. The Bologna Process has paved the way for double degrees. In this case both universities, home and guest university, sign the diploma that an Erasmus student receives. It counts as a 'double diploma'. In the case of a joint degree, the collaboration goes even further. In this case students who have completed the foreign programme ideally obtain a degree awarded jointly by the participating institutions, and fully recognized in all countries [7]. The latter requires an adapted legal framework in the participating countries.

### **1.3.3 Erasmus Mundus**

Step three finally will consist of the Erasmus Mundus application, the international counterpart of the Erasmus programme, we are willing to do in 2012, which will be based on our common programme. We are willing to develop a unique European Master offered by our LACE Consortium, of which all partners are recognized higher education institutions from one of the 27 Member States of the European Union [8]. At this level, it will be very important to know precisely how the common programme will be organized and implemented, but for the moment everything is still open for discussion.

## **2 PEDAGOGICAL FRAMEWORK**

### **2.1 Internationalization as an educational requirement**

LACE is not just a network that aims some added value by improving mobility between teachers and students. There is something very compelling about the LACE concept, something rather urgent indeed. The idea is that in the current context, the master programmes involved feel they need to internationalize to be able to reach their stated pedagogical goals.

Whether it involves a Master in Cultural Studies or in Western Literature, the cultural background of the teaching is definitely European and can only be fully experienced in a European context. For Cultural Studies, this is in particular the case in two main strands of Master dissertations that are proposed to the students. Each year, a sizeable group of students chooses to work on Cultural Heritage. Both the referred academic literature as the practice involved is clearly forged by common European history. Furthermore, heritage involves the risk of misguided nostalgia and idolatry of a mythical past. By direct confrontation with different viewpoints of fellow European students a much richer context is shaped, that allows the master students to really understand these phenomena on the scale they require. As for the second important strand involved, students studying Digital Culture and media, for them operating in an international setting should be second nature.

The course on Film and Literature is exemplary for what is meant. By pairing Belgian and Spanish students to work on assignments, different backgrounds are activated and a more challenging discussion can emerge [9].

For these reasons, partners involved in LACE are keen to host a more "European" mix of students in their classrooms. In the case of Cultural Studies, this is also required to form people that can actually conceive, develop and lead inspiring and credible cultural projects that are up to the standards one might expect in Europe's Capital City.

### **2.2 Open educational policies**

The LACE consortium embraces Open Educational Policies, and wants to offer its course to the public under Creative Commons Licensing [10].

Besides its obvious advantages for internationalisation, there are many reasons why Open courses are beneficial, both for the individual professor as well as the involved institutions.

#### **2.2.1 Profiling**

For the LACE partnership, providing Open Courses is a deliberate choice to position the network in the international scene. The idea is that high-quality courses from the consortium together with inspiring web lectures by partner institution professors will show interested students and colleagues abroad the possible added value of a study at or collaboration with the involved institutions. It is definitely our goal to be a reference network on culture education within the European space, but also

beyond. In this sense, some partners like e.g. Groningen and Leuven have decided to embrace Open courses, and are evaluating to join the Open Courseware consortium [11].

For universities it is becoming very important to be present on the web with high quality materials.

But profiling is also important for the individual professor, not in the least for disciplines like cultural studies and literary theory, where the individual voice is overall important. Of course, people get their academic fame from publications in peer-reviewed A-journals or books. But often these publications are rather specialized and meant for a selective, highly educated circle of peers. But good professors are also acclaimed teachers in undergraduate or master classes, where their broad erudition and rhetorical talent is an intrinsic part of what educates someone to become a more mature intellectual. This is in particular, but certainly not exclusive to, the case in Humanities teaching. Schoolbook publications even of master courses at the university unfortunately do not weigh heavy in academic ranking and are only locally published, with a constrained audience. Opting radically for Open courses, a professor can free himself from the casuistic environment of his actual teaching and open up his broader competencies to a larger and unexpected public.

This certainly might be one of the reasons many scholars maintain blog pages to discuss work in progress, but also views on topics they do not necessarily address in journal articles.

One must also take into account that in Humanities, the fundamental master-pupil relation still holds and the lectures are a basic part of the knowledge transmission. By recording classes by eminent scholars within the consortium, LACE hopes to build a repository of highly valuable video footage that will even get better with the age, so to speak.

### *2.2.2 Mainstreaming insights to a broader public*

One of the reasons Leuven University is considering Open courses, has to do with its role in the newly formed K.U.Leuven Association of Higher Education [12], where the university teams up with 12 institutions of higher education throughout the Flemish region. The incentive for this came from the Bologna reform, which stimulates academisation of higher education.

How do Open courses come into play? In a lot of domains, new academic insights just take too long to reach course texts of higher education institutions. Often, the latter exhibit rather dated views on certain topics, due to a more locally constrained and thus less competitive environment. By producing Open courses in societal relevant domains - e.g. public health care or social law - the university hopes to set out intellectual beacons and provide new benchmarks. It has to do with taking up regional responsibility in education: making sure the surroundings are optimal for science and education to flourish.

This need to enter in dialogue with a broader learning environment - much of it stemming from Life Long Learning - is strongly felt in the domain of Literature and Culture in which the LACE partners operate. What is literature without being read? Without literary criticism, public debate? LACE courses want to contribute to this by enriching the web with high-quality information, not only for graduate students but also for a much larger audience, sometimes indefinite, sometimes very identifiable, to give one example: many of the students in Cultural Studies in Leuven come from higher education outside the university, in part education in social cultural work, where introductory courses on literature and culture are taught that might find inspiration in the LACE courses online.

### *2.2.3 Reaching out to stakeholder communities*

In line with the former point Open courses also offer the opportunity to reach out to stakeholders from within the academic community [13]. A course on Film and Literature can and should interact with the reality surrounding the university. People involved in the organisation of Film festivals, for so far they are not actually former students of these courses, are anyway likely candidates to get involved and to offer a more embedded approach to the academic topics involved, where culture becomes what it is: a series of practices, communities, shared values. In typical courses of LACE, guest speakers are often invited who actually stem from the stakeholder base: museum curators, writers, critics, festival organizers...

By putting the course and the student activities open to the public, these stakeholders can actually contribute and participate in making the course part of the reality, a notion of self-referentiality that should not be strange to these particular subjects.

### 2.2.4 Quality Control

Open courses prove to be quite a challenge, when compared with the e-learning courses that you find plentiful in university systems. A typical blackboard course relies heavily on information that the professor provides during classes, and is often difficult to use for a non-present student. Very often the course materials are limited to the course text, and there is little or no interactivity.

When elaborating an Open course, the author should keep an undefined, broader audience in mind with less predictable foreknowledge. More effort has to be directed to proper contextualisation and autonomous assessment should be provided.

More importantly, while using third party materials behind the safety of a closed internal e-learning system is quite widespread and innocuous, Open materials have to be cleared very carefully from copyrighted materials, and of course any shortcomings in citation discipline will surface sooner or later once published on the internet.

The fact that external viewers of different expertise levels - e.g. with more expertise in some adjacent fields mentioned in the course - have free access to the course and ideally can participate also in ongoing forum discussions, makes that content is effectively subjected to thorough screening and measured against open-ended standards.

In the LACE consortium we also think that Open courses on Culture and Literature invite debate and force the author and his students alike to carefully review argumentation lines and be open to differing or even dissonant viewpoints.

## 3 THE ROLE OF TECHNOLOGY

An international master like LACE can only be successful through integral technological support, where both ODL techniques as more general social software tools are implemented. These technologies have already proven to be of high added value for Erasmus exchange programmes, where they have helped us to keep contact with students studying abroad. In the context of LACE we want to capitalize on this experience while following a more systematic approach.

The framework used for LACE uses the following components:

- A Drupal CMS for the website
- Moodle LCMS environment
- Video streaming facilities
- Off-the-shelf communication tools
- State-of-the art university back-end systems that allow individuated study profiles and administrative support

In this section, we will describe these different components in more detail.

### 3.1 Drupal CMS

The LACE website [14] is based on a Drupal CMS. A rather standard flavour is used; in a later project phase a specific design will be applied to make the site more attractive. Currently it is more a functional site to get the project going.

### 3.2 Moodle LCMS environment

To improve mobility amongst the students and teachers it is important that each involved institution has state-of-the-art e-learning tools at its disposal. Of course, in some cases these solutions are optimized for face-to-face teaching and not really meant to be used outside of a blended learning context.

That is why we opted to deploy a smaller, dedicated Moodle platform for LACE [15]. Of course, we could have used one of the partner's e-learning platforms, but the problem with the latter is that it is completely optimized to integrate with the university's backend and the student registration procedures. While this is highly beneficial for our main classroom teaching business, it just doesn't work out for an internationalized context, where in our institution unregistered students from network partners have to participate in the virtual learning activities. While negotiations are underway to open

up our university legacy e-learning systems to fit internationalization requirements, adopting Moodle as an intermediary, faculty-scale solution proved a cost-effective approach [19] .

For students, working with different accounts on a plenitude of websites is no longer felt prohibitive and matches their more general and private online experience. It also cuts coordination overhead and stimulates innovation, since each institution can work at its own pace. It also aligns with the university policy which chooses to create a learning environment out of separate, independent components using an open architecture rather than deploying one monolithic solution.

In the Moodle environment each partner will provide open courses that are to be part of the LACE consortium [20]. An example is the Film and Literature course from Leuven University. It follows a weekly format, with course text and materials provided for each week. The lessons thought in Leuven by Prof. Jan Baetens are also recorded and integrated into the course. This serves two goals: students can view certain sections again when they want, and students at a distance, e.g. students in Granada who are also taking this course, can tune in to the lessons. Moodle also provides in a wiki facility that normally is used in this course to allow hybrid student groups (Leuven/Granada) to collaboratively work on a paper assignment.

Forum discussions are an important part of learning interactivity for this course, and the forum discussions are also organised on a weekly basis.

### **3.3 Video facilities**

For LACE, both full-blown videoconferencing and web-based video-communication tools are used [16]. For the course on Film and Literature, videoconferences are held involving student groups from Leuven and Granada, so that they can learn to know each other and pair for paper groups. The videoconferencing hub also supports MSN and Skype link-ups for maximal flexibility.

LACE also provides in a video streaming server VideoLab [17] used to publish the online web lectures.

### **3.4 Off-the-shelf communication tools**

To support mobile or "off-shore" students does not always require investment in heavy technological infrastructure. For our Erasmus exchange students, we like many other universities soon discovered the ease of use of tools like Skype to keep in contact with students who are studying abroad. A teaching assistant is always reachable through Skype for the students, so that their administrative and other problems can be followed up swiftly. We also noticed that communication through mail often adds to the stress of the stay abroad, due to the delay between answers and sometimes misunderstandings that arise from the email messages. By using Skype, students know that someone familiar can be reached easily in direct contact to solve problems, e.g. regarding housing.

Direct video communication over the internet also allows students abroad to participate in the ongoing academic life of their class at home. More in particular, since they mostly still have to complete their master thesis while being a semester abroad, they can participate in the regular exercises that support thesis writing, like in our case two short presentations of the work progress. This is done by contacting the dissertation supervisor through Skype. The student sends his PowerPoint presentation beforehand.

### **3.5 Back-end systems**

#### **3.5.1 Administration**

Today's university information systems are a far cry from the mainframe applications of the past. They are now mostly genuine university management systems based on classical ERP software like SAP (Leuven) or PeopleSoft (Groningen), that allow very fine-grained registration of students and their study curriculum. This basic information is capitalize upon in LACE to be able to support the more formal issues involved. Currently the partners are discussing double degrees and later joint degrees. The fact that most partners have advanced back-end systems allows us to work out the technicalities of exchanging credits and equivalencies, in a way, most importantly, that allows the students to follow this up from a distance, while studying abroad.

While integration of back-end systems with the university LCMS systems is not really an issue anymore, work should be done to make these systems more open, to allow them to hook up to today's many social software solutions that make up web 2.0 learning, and which form the core part of the

LACE learning environment. This more technical project is not part of LACE but is totally in-line with the technological roadmap of many of the involved institutions.

For the more legal and strictly administrative part of bi-diplomation efforts the LACE consortium can count on specialist team members from within the partnership.

### **3.5.2 Library systems**

One of the key enabling factors for a project such as LACE is the fact that university libraries have undergone a tremendous transformation in the past decades [18]. The Digital Library, as it is a reality in Leuven, Groningen, Aarhus and other partners, enables the students to work on their own library collections from their stay abroad. In our current experience with both co-teaching (Film and Literature) as well as with the student exchange (Erasmus), the Digital Library has proven to be a common background to work against, literally integrating over the internet decades of different and locally coloured collection traditions. Skilled students can compare library holdings at their home and distant university and see for complementarities of scope or literary tradition. This of course is important in LACE, where Literature and Culture, the notions of identity and change, are studied in depth but at the same time often in a comparatist setting.

## **3.6 Support beyond the course context**

The technological framework is not just there to provide course support or support online and distance learning. It is meant to enable teacher and student mobility within LACE as such. In particular, through the web-portal it is possible to support the stay of students abroad in very innovative ways. In most of the degrees involved in LACE, there is a requirement to take an apprenticeship. This is a very crucial part of the education into Cultural Studies. For most students this poses some organizational problems: a Leuven student e.g. has to do 240 hours in an apprentice position. The student can choose his own apprentice place, (we provide a very comprehensive list of possible employers, both locally in Belgium or abroad in the LACE network). But planning of such an apprenticeship together with a semester abroad proves difficult. For this we are developing 3 scenarios that capitalize on the virtual LACE framework.

### **3.6.1 Apprenticeship in home country and study abroad**

The student arranges for an apprenticeship in his home country, which is performed in its totality or in part during the stay abroad. This is in particular useful when the apprenticeship is also meant as a career launch, and the student wishes to develop his career in his home country. In agreement with the employing institution, we arrange for distance work facilities that enable the student to operate for the hometown organisation while being abroad. This makes sense in particular when the student performs some prospection of library work in the region where he stays abroad.

This formula might appeal in particular those students in the LACE framework who are language and literature students. A portfolio environment, shared workspace and of course communication tools are provided in this setting.

### **3.6.2 Apprenticeship and study abroad**

In this scenario the LACE framework acts more like an information hub, enabling the student to find an apprenticeship in the place where he is going to study abroad. LACE partners act like regional agents and prospectors, finding suitable trainee posts for incoming students. They also function as a local contact and support. The technology consists here mainly in the apprenticeship database which is shared amongst LACE partners to this end.

### **3.6.3 Apprenticeship abroad and study in home country**

In this case a student will only perform an apprenticeship abroad, mediated by one of the LACE partner institutions. This scenario will have more limited appeal, but there are cases in which it can be useful. In some cases the student might continue his study at the distant university, and getting in touch by doing already an apprenticeship from a distance might offer unique possibilities. For this to work, a full-blown technological framework for mobility is needed just like in the first described scenario.



## 4 CONCLUSION: ICT AS AN ENABLING FACTOR

As has been detailed in this paper, LACE is a typical initiative in the Post-Bologna era, where Master degrees are conceived in a European, internationalized context. Internationalization, we have argued, is not a goal in itself but has become an intrinsic necessity for the kind of Master programmes that we want to offer our students. In the pedagogical concept on which the LACE network is based, Open Policies lie at the core of the educational project we want to share with the students. These policies also set the boundaries for the technological framework chosen. In the effort of the LACE partnership towards double and joint degrees preparing for Erasmus Mundus and a true multi-partner international Master programme, ICT technology proves to be the enabling factor, at different levels:

- Transparent information for participating students from the LACE consortium and for possibly interested students in other institutions through a website
- Open courses that allow profiling of institutions as well as professors within the partnership, mainstreaming of contents and insights in a regional context and the possibility to reach out to stakeholder communities, and finally provision of inherent quality control due to the constraints and incentives of open publishing
- An interactive space that allows students at home and abroad to interact with each other, the staff and the course contents in a seamless way, and which also allows supporting students at a distance in all aspects of their study path.

We described the role of the various components of this distributed, networked environment where a Drupal CMS is teamed with a Moodle LCMS, video streaming services and off-the-shelf communication tools all tuned to yield a user-friendly virtual campus to the students. We also stressed the necessity of state-of-the-art university back-end systems in support of this, and the transformational role that the digital library is playing in making this kind of internalized master programmes successful.

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